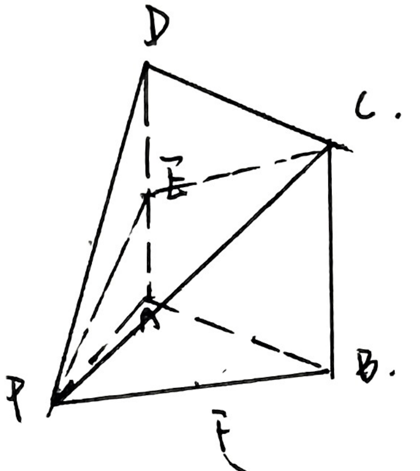
5.

16. (2) 刘振冬



PA⊥平面ABCD.

CB⊥平面PAB.

$PC=\sqrt{3}$.

$PD^2+DC^2=PC^2$

$\triangle PDC$ 为 Rt $\triangle$.

面积法: $V_{E-PDC}=\frac{1}{3}\cdot h\cdot\frac{1}{2}\cdot 1\cdot\sqrt{2}$.

CD⊥平面PDA.

$V_{C-PDE}=\frac{1}{3}S_{\triangle PDE}\cdot CD=\frac{1}{12}$

$V_{E-PDC}=V_{C-PDE}$.

$h=\frac{\sqrt{2}}{4}$.

17. (2). $\cos B=\frac{1}{7}$.

$\sin B=\sqrt{1-(\frac{1}{7})^2}=\frac{4\sqrt{3}}{7}$.

$\sin C=\sin(A+B)=\sin A\cos B+\cos A\sin B=\frac{5}{14}\sqrt{3}$.

$\frac{a}{c}=\frac{\sin A}{\sin C}=\frac{7}{5}$.

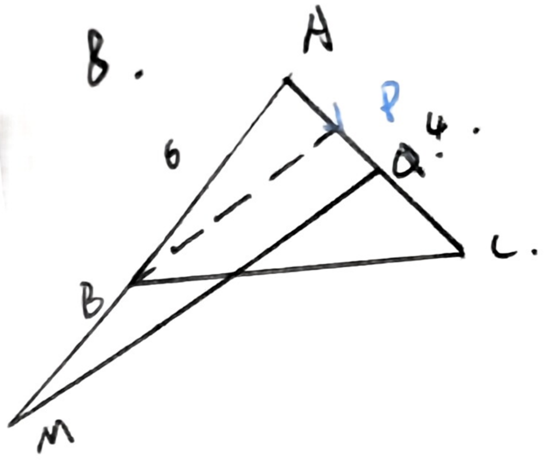
设 $a=7x$. $c=5x$.

在$\triangle ABD$中 $AD^2=AB^2+BD^2-2AB\cdot BD\cos B$

$\Rightarrow x=1$ $a=7$. $c=5$.

$S=\frac{1}{2}ac\sin B=10\sqrt{3}$.

B.



$\overrightarrow{AO} = x\overrightarrow{AB} + 4y\dfrac{\overrightarrow{AC}}{4}$

$= x\overrightarrow{AB} + 4y\overrightarrow{AP}$

连接 ~~BP~~ BP.

$\because x+4y=2$.

$\therefore$ O在MQ上.

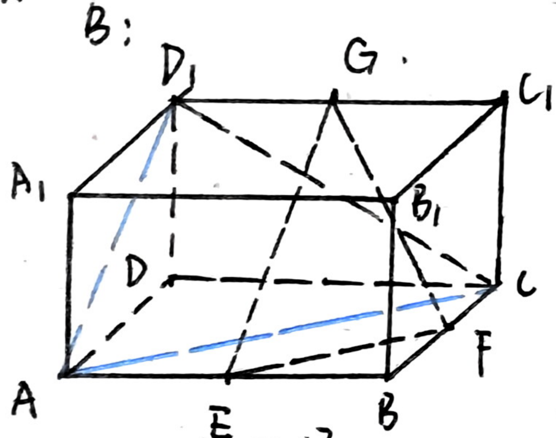
由外心的性质知

$MQ \perp AC$.

$\therefore \cos\angle BAC = \dfrac{2}{12} = \dfrac{1}{6}$.

11.

B:



面面平行.

连接 AD_1. AC.

$EF \parallel AC$. $AD_1 \parallel EG$.

$\Rightarrow$ 平面 $GEF \parallel$ 平面 D_1AC.

$\therefore D_1C \parallel$ 平面 GEF.

15. $\vec{a}\cdot\vec{b} = -12$.

$|2\vec{a}+\vec{b}| = \sqrt{(2\vec{a}+\vec{b})^2} = \sqrt{4\vec{a}^2+4\vec{a}\cdot\vec{b}+\vec{b}^2} = \sqrt{28} = 2\sqrt{7}$.

平方法

求模的方法.